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ABSTRACT

One of the primary objectives of the National Center for Higher Education Management Systems (NCHEMS) is to develop methods and techniques to assist institutional decision makers in allocating and utilizing available resources. Besides being key institutional resources, faculties are primary users of financial resources. Their salaries often represent 60 to 80 percent of institutional operating budgets. In the context of other NCHEMS projects dealing with program costing, it is imperative that faculty salaries be distributed to programs. Data on faculty activities are on way to do this. For these reasons, faculty activity analysis (FAA) is the subject of the present project. The purposes of the FAA project are to develop (1) techniques for collecting data that will serve as a foundation for allocating faculty salaries to institutional programs, and (2) standard procedures for analyzing faculty activities. This document presents a discussion of the broad purposes of FAA, an overview of the issues that must be addressed during the design of faculty activity studies, and a review of the literature. A comprehensive bibliography concludes the paper. (Author/HS)

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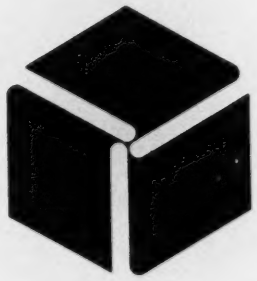
FACULTY ACTIVITY ANALYSIS: OVERVIEW AND MAJOR ISSUES

OVERVIEW AND MAJOR ISSUES

Technical Report 24

TECHNICAL REPORT 24

National Center for Higher Education Management Systems at WICHE



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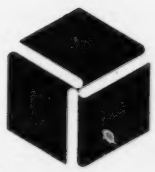

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To design, develop, and encourage the implementation of management information systems and data bases including common data elements in institutions and agencies of higher education that will:

- provide improved information to higher education administration at all levels.
- facilitate exchange of comparable data among institutions.
- facilitate reporting of comparable information at the state and national levels.

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FACULTY ACTIVITY ANALYSIS

FACULTY ACTIVITY ANALYSIS

Overview and Major Issues

Technical Report No. 24

December, 1971

by

Leonard C. Romney

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PREFACE

One of the primary objectives of the National Center for Higher Education Management Systems is to develop methods and techniques to assist institutional decision makers in allocating and utilizing available resources. Besides being key institutional resources, faculties are primary users of financial resources. Their salaries often represent 60 to 80 per cent of institutional operating budgets. In the context of other NCHEMS projects dealing with program costing, it is imperative that faculty salaries be distributed to programs. Data on faculty activities are one way to do this. For these reasons, faculty activity analysis is the subject of one of the projects of NCHEMS.

The purposes of the FAA project are to develop (1) techniques for collecting data which will serve as a foundation for allocating faculty salaries to institutional programs, and (2) standard procedures for analyzing faculty activities.

The following pages present a discussion of the broad purposes of faculty activity analysis, an overview of the issues that must be addressed during the design of faculty activity studies, and a review of the literature. A comprehensive bibliography concludes the paper. Subsequent manuals and reports will present instructions, formats, and procedures for gathering and analyzing data about faculty. A description of these documents may be found in the appendix.

This document is published by NCHEMS and distributed to our participants in order to lay the foundation for subsequent papers. We hope that it will also evoke suggestions as to the nature of the procedures to be presented in the subsequent reports. In order for the Faculty Activity Analysis Project to be an asset to the academic community, such suggestions and comments will be necessary and welcome.

Ben Lawrence, Director
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SECTION I

INTRODUCTION

Approximately 750,000 faculty members are situated throughout the country in more than 2,500 institutions of higher education ranging from community and junior colleges to liberal arts colleges, technical institutes, state colleges, universities, and multiversities. As major contributors to the outcomes of higher education, faculty receive salaries that constitute 60 to 80 per cent of the cost of running an institution. Funds to pay these costs come from taxes, contributions, in essence from the public, and tuition. Few participants in the academy today would fail to realize that the public's willingness to support higher education is becoming increasingly conditional. Clearly, the education enterprise is subject to increasing public scrutiny. Concomitantly, interest in what faculty members do increases because faculty are particularly visible and because they constitute the major institutional cost.

Faculty participation is essential to academic functions of imparting knowledge, creating new knowledge, and sharing with the public sector those unique scholarly and technical skills that reside within higher education. However, the contributions and activities of these highly educated professionals are subjected to a variety of criticisms.

The purpose of this paper is to attempt to describe the issues related to answering the following questions: Who is a faculty member? What does he do? How does he spend his time? What are the results or effects of his activities?

These deceptively simple questions suggest only a fraction of the concerns currently focused on faculty by a variety of interested constituencies. To answer them is no minor or straightforward task. The great number of faculty and the varied types of settings in which they are found are initial difficulties encountered in trying to find answers. Further difficulty lies in the fact that institutions described in similar terms, such as "private liberal arts college," are hardly carbon copies of some standard model. Institutional differences in organizational style, programs, available resources, resource allocation priorities, traditions, size, and location have a decided effect on what faculty do, how they spend their time, and what they produce. Even within a single institution, marked differences in patterns of activity have been observed among faculty who deal with different institutional constituencies. Moreover, faculty "life style" varies from individual to individual. A matrix constructed to reflect variations in faculty activities and outputs easily could be a function of such parameters as discipline, level of student, seniority, rank, type and kind of institution, and even time of the year. Each of these parameters may well be independent of all the others. Moreover, each has a marked and unique effect on how faculty spend their time.

Quite apart from technical problems of clearly identifying patterns of faculty activity and output are the problems of attaching values to these patterns. Are teaching activities more "valuable" than research activities or activities associated with other professional services? Regardless of the answer, is the same relative "value" to be attached to the activities of every situation? Is a faculty member who can report 60 hours of professional

activity per week more valuable than faculty who report "only" 50 hours? Can it be claimed that a 15-hour classroom teaching load has greater instructional impact than does a load consisting of 5 hours of classroom teaching and responsibility for the direction of doctoral dissertations?

The issues raised by these questions suggest two rather important points. First, although the individual factors may be different, the issues are not unique to professionals in higher education. Establishing patterns of activity and assessing their worth are valid concerns whether one is dealing with faculty, lawyers, physicians, engineers, social workers, librarians, school teachers, or any other professional groups. Second, although, contrary to popular belief, there is no dearth of literature dealing with faculty, (see Blackburn, 1971, and Parsons and Platt, 1968), the available literature that describes life styles of higher education professionals offers no simple answer to questions of what they do, how they spend their time, or how their activity patterns may be evaluated.

Faculty Activity Analysis In Context

Recent literature (Blackburn, 1971 and Carnegie Commission, 1971) has referred to the pressures which currently are exerting such significant influences upon our society, higher education, and faculty in particular. These pressures, which are sometimes in conflict with each other, are affecting the whole fabric of our society and have marked effects on both the academy and faculty. An understanding of these pressures may be useful in sorting out the justifications for analyzing faculty activity patterns. It is possible to list a multitude of such pressures, but the following paragraphs explain the more significant ones and their possible consequences for higher education and faculty members.

1. Economic Pressures and Consequences

The conbination of an extended Asian war, an inflationary economy, substantial unemployment, and limited tax revenues has meant that financial resources have dwindled relative to needs to a point where competition for available dollars has become severe. This condition of financial stringency means that the academy must compete with other social agencies for dollars which previously have been more available. In essence, the need for dollars may have exceeded the supply. Consequently some colleges and universities are experiencing lean years; at worst, others are being forced to reduce drastically their program offerings or to close altogether. The rate of increase of financial support may continue to decrease; at least a change in the present straitened situation is difficult to foresee.

Perhaps for faculty the most significant consequence of economic pressures on higher education is the increased vulnerability of colleges and universities to external control. He who pays, controls, and he who controls resources in effect can dictate behavior. This control may reduce faculty opportunities for making program choices. Regardless of the degree of resource control, the exercise of this kind of control is being removed from faculty hands.

Also the effect on faculty of financial stringency may portend difficulties for faculty in terms of mobility as well as salary. Tenure and promotion ladders may become clogged on the top side; access to the lower rungs may be reduced; those on the middle steps may be forced to remain there. Mobility previously has been a significant motivator to stimulate faculty growth. New modes to assure continued faculty development may now need to be found.

2. Population Changes and Consequences

Birth rates nationwide have been decreasing since introduction of "the pill" and legislation of more liberal abortion policies. Whether the birth rate will continue to go down, stabilize, or rise again is not clear. Nevertheless, enrollment predictions for higher education become less certain. This uncertainty as to the size of the potential enrollment pool may mean that growth will no longer be an option for the academy. Also, proliferation of programs to meet student and faculty desires may no longer be possible.

3. Cultural Pressures and Consequences

The value of the individual is getting more emphasis than the value of the organization. There seems to be an increased awareness of humanistic values. Openness draws more support than secrecy. Also, more young people are "seeking vocations outside of the Horatio Alger Syndrome" (Carnegie Commission, 1971). Regardless of whether the short run or even the longer run effects of these trends are more humane or result in a more sensate culture, demands for change in the name of these virtues takes on added force in this context. An academic community built on a work ethic probably will be less effective in such an atmosphere, however. If higher education has been "elitist," this cultural "revolution" will demand higher education to change. If the academy has refused admittance to certain classes of citizens, it will be forced to open its doors to all.

4. Public Policy Changes and Consequences

Those who set priorities and control dollars now more than ever before appear to be evaluating organizations in terms of their ability to produce economically and efficiently. The education enterprise is perhaps the last to feel the press of this trend. After a century of strong support, the roles and abilities of higher education are being reassessed. The academy is being asked to justify its products in the same way that other organizations and agencies must. The demands for accountability are forcing higher education to consider implementing administrative methods which were previously thought to be inappropriate.

These demands for accountability and efficiency may require alternative faculty workload patterns and increased studies for faculty workloads and assignments. Faculty also may find themselves in increasing turmoil because of their obligations as professionals in their chosen discipline and their obligations as employees of a publicly supported agency. The responsibilities and attitudes associated with each of these obligations may be in conflict.

5. Labor Market Conditions and Consequences

Although 80 per cent of the current jobs do not require a college degree, 65 per cent of young people may soon at least enter higher education. However, it is becoming evident what happens when the labor market no longer absorbs graduates at the level of training which they have acquired. This is becoming obvious in the ranks of faculty, for example.

Bernard Berelson (1960) and Alan Cartter (1965) are among the few who foresaw "an impending tidal wave" of Ph.D.'s ready to teach but who far exceed the demand for college teachers. Not only is there a current oversupply of persons qualified for and intending to obtain faculty positions, but the oversupply is likely to continue. Graduate schools, once tooled up, have understandable difficulties in reducing or closing down "production rates" for some four or five years.

Another labor market condition is the trend toward the unionization of higher education. Efforts to organize faculty and other employees of higher education have been legitimatized and even encouraged by recent legislation. Faculty affiliations with labor organizations began a few years ago when there were ample job opportunities and expanding job markets. Now, however, times have changed; protection for faculty is sought, and faculty unionization trends are accelerating. The National Labor Relations Board (NLRB) has agreed to intervene in cases where organization is sought for employees of some private institutions.

The onset of collective bargaining, faculty organization, and unionization in higher education promises to have far-reaching effects on the academy. The normal avenue of communication between faculty and administration has been a collegial relationship. The advent of unionization, however, could replace this with a labor/management adversary relationship. The power to negotiate demands is becoming vested in the hands of a few powerful delegates. This may spell an end to, or at least a significant decrease in, the opportunity for individual faculty members to guide the course of their own careers. They are becoming too far removed from the recognized seats of power. A second, significant consequence derives from the faculty unionization trend. Analyses of faculty activities and their effects are no longer just exercises in information gathering to support cost analyses. Although the former use is important, in the context of collective bargaining, faculty activity studies may become important management tools for evaluating contract performance.

Summary

The implications of current social forces for the academy and for faculty are many. Perhaps one of the most important of all administrative functions henceforth is going to be to assist faculty in becoming accustomed to these pressures as well as to find new ways to stimulate faculty development.

Such problems do not, however, constitute sufficient justification for avoiding the task of analyzing faculty activities and their effects. The forces which currently press upon society, higher education, and faculty members demand that faculty activities be identified; resultant activity patterns and their implications be analyzed; and rational, objective approaches for evaluating the relative as well as the absolute worth of activity patterns be found. By alluding to the difficulties associated with these issues, this introduction has sought to evoke in the reader a degree of caution and circumspection, and the capacity for prudence, understanding, and rationality in analyzing resulting faculty activity data.

SECTION 2

FACULTY ACTIVITY ANALYSIS

Background

Analysis of how faculty spend their time has had a long, uneasy history. (See Appendix B for an in-depth review of the literature of faculty resource studies.) Reeves and Russell (1929) summarized the situation in this way:

> The evaluation of faculty load is an extremely difficult problem. Teaching duties and other professional duties vary tremendously from institution to institution and from individual to individual within a given institution. In fact, the factors involved in determining total faculty load are so numerous and so varied as almost to preclude precise determination by any mechanical method. No thoroughly scientific method of measuring faculty load is now available. Existing measures are unsatisfactory and incomplete. The answers are not yet in. Yet, as a practical necessity, some method of measuring and adjusting faculty load even though only approximate must be employed.

In 1959 the American Council on Education held a conference at which the topic "Faculty Workload" was discussed. Some participants at the conference tended to echo the Reeves and Russell view of three decades earlier. "From a practical point of view the solution to this problem...is both impossible and imperative." (Bunnell, 1960, p. 92.)

After another 12 to 13 years some may contend that the situation still has not changed significantly. Nevertheless, a general review of faculty activity analysis may serve at least two useful purposes:

1. To gain an understanding of the developments and progress that have been made previously
2. To become acquainted with the problems that must be addressed before satisfactory procedures for analyzing faculty activities can be formulated

In the period immediately following World War II and throughout the period of the 1950s and '60s, a considerable amount of attention was devoted to:

1. Bringing about significant improvements in faculty salary compensation and in the relative economic position of the faculty
2. Gaining an understanding of the components of faculty workload
3. Obtaining sufficient faculty to meet demands

The urgent planning problem facing the leadership of higher education at that time involved obtaining an indication of the quality and amount of resources needed to cope with the anticipated expansion and changing mix of enrollments. International competition to explore space as well as the federal emphasis on basic scientific research (and its defense implications) further accelerated these concerns. Higher education's subsequent expansion took place in an atmosphere of social consensus that purported that it was not only desirable

to achieve national scientific superiority but that it was also economically justifiable. The academic community was viewed as a key element in that aim.

Commensurate with increasing public investments in higher education during this period were increasing demands for accountability. Institutional fiscal managers and trustees, federal and state officials, and public constituencies in general were seeking ongoing documentation of the utilization of faculty resources. Administrators were faced with expanding college enrollments and the need to open new facilities to house these larger enrollments, to meet marketplace competition for a limited supply of trained faculty, and to improve the overall quality of instruction. Accordingly, administrators developed various devices to capture the information necessary to answer questions of faculty utilization. The most commonly used technique was the faculty time survey. Either on a regularly recurring, term-by-term basis covering all faculty members or on a periodic work sampling basis, information was collected concerning allocation of faculty time to specified lists of activities. The explicit justification for these investigations rested upon two basic assumptions:

1. That certain kinds of faculty activities somehow are related to the quality of the learning environment created by the institution
2. That mixes of faculty workloads influence the costs of producing the learning environment

Thus, the faculty time study has been seen as a tool to investigate faculty influences on the quality of education and perhaps to reduce its cost.

As a result of the sometimes misguided use of the information, an almost universal faculty hostility to this type of inquiry developed. The hostility should have been expected since aversion to such studies is almost universal, irrespective of occupation. Faculty tended to give either no information or misinformation. In addition, some of the methods of reporting were confusing and faculty made inadvertant errors in recording information. Consequently, the reliability of the faculty information could never be established firmly.

The calculation of instructional costs per FTE student by level of student and/or level of course has been one of the most prevalent analytical uses of faculty activity data. Typically, these costs are rather routinely calculated and generally reflect an allocation of faculty salaries partially or entirely to courses. A number of earlier studies used the credit hour value of the course as the allocation base. More recently, hours or estimates of percentag of time have largely replaced this technique. Profiles of staffing (workload analysis) and of average hours spent per week have also received significant analytical attention.

A major study (University of California, 1970) of the distribution of faculty activity at the University of California in 1970 addressed the issue of joint products. A two dimensional format was used by which a sample of the faculty was asked to indicate not only time spent in various types of activities, but also the degree to which that time contributed to any one of to a combination of output categories. The results showed that 70 per cent of faculty teachin time produced exclusively instructional outputs. That is, 30 per cent of

faculty teaching time produced outputs other than instructional outputs such as new knowledge and public service. Moreover, the sample of faculty indicated that nearly 40 per cent of all their time contributed to more than one output. The study is of major significance because it has indicated that a single type of faculty activity may affect several institutional objectives. Moreover, a simple inventory of time spent in various activities may mask the actual effects of what faculty accomplish.

Faculty activity studies often have taken the form of course analyses. These generally are most useful at the departmental or unit level for evaluating staffing patterns. The more sophisticated approaches link the type of instruction (e.g., lecture, recitation, and laboratory) with the course section under the course number; indicate staff costs, related equipment and operating costs, space available and utilized, and student enrollment data; and show the course classification and type of instruction. Such comparisons are of particular value in evaluating the resource implications of differing educational methods.

In the area of "comparative" resource allocation studies, a number of sins of omission, lack of definition, and lack of data integrity have been committed. Fortunately, such studies have not been put to much use.

In addition to the issues of institutional administration and budgetary documentation for acquisition and allocation of resources, faculty time data also have been instrumental in attempting to establish institutional and faculty credibility, to assess salary increments, and to justify contract overhead reimbursements for services provided to federal and private agencies.

The validity and relevance of various methodologies used to answer analytical questions relating to use of faculty have received far less attention than questions concerning whether or not faculty activity surveys should be conducted at all. However, questions relating to conducting faculty studies no longer need be concerned with "if," but rather must pertain to "how." The critical issues pertain to the quality, relevance, accuracy, validity, and usefulness of the methods designed to collect, analyze, and display the information. Awareness of these critical issues underlies the theme of this paper.

Purposes

Faculty activity analysis, in conjunction with analyses of other institutional resources, is a useful and necessary ingredient to the following management functions:

- °Long-Range Planning
- °Program Review and Evaluation
- °Budgeting
- °Resource Utilization Analysis

1. The Long-Range Planning Function

The long-range planning function at an institution defines the broad outline for the future directions in which the institution wishes to move. Most colleges and universities espouse similar broad purposes.

However, the particular objectives that a specific institution selects to achieve its purposes and the manner in which it accomplishes these objectives are important distinguishing characteristics of that institution's identity. The long-range plan should signal the importance given to each objective and suggest the distinctive manner in which the institution intends to achieve its objectives.

Who is to be instructed? Who is to instruct? What instructional programs are to be offered? What kinds of research are to be done? Which publics are to be served? These are some variations on the theme of basic objectives that identify differences in educational institutions and from which long-range planners must choose. These considerations should become the basis for dialogues about future programs and modifications to existing ones. In this framework, information about what faculty are doing, how much they are doing, and what they accomplish by engaging in specific activities are important data to the planner. Faculty performance largely determines the extent to which the institution's programs and objectives are achieved. Faculty resource analyses assist the planner to estimate faculty resource requirements for projected programs.

The program planning and budgeting approach emphasizes the importance of looking at the relationship of inputs to outputs within major programs and between programs. John Keller writes:

A program budget is a way of organizing and presenting information about the costs and benefits of the output producing activities (or programs) of an organization. Its principal objective is to facilitate planning, analysis, and resource allocation decision making by the central managemen of an organization. Its principal distinguishing characteristics are: a structuring in terms of output-producing programs; the organization of these programs in relation to explicitly stated objectives and subobjectiv of the organization; a focus on the outputs (or benefits) as well as the costs of the programs; an emphasis on total variable costs associated with each activity (or program); a closer integration of substantive and financ planning; and a projection of both the costs and outputs of the programs i accordance with some agreed plan, over a significant number of years into the future.

Application of this basic concept to faculty requires data quite different from those used in most past studies. Ideally, some measure of the relationship between the activities in which faculty engage and the outputs thus produced would best serve the long-range planning function.

2. The Program Review and Evaluation Function

Within a framework of management assisted by program planning and budgeting techniques, the program review and evaluation function is intended to determine and evaluate program costs. The long-range plan will be affected by how decisions are made with respect to specific program proposals, how alternative programs are conceptualized, and how well new programs are assessed in terms of their impact on existing programs. The program review and evaluation function is essentially short-term. Ideally, program review and evaluation would consider existing programs as one of many alternatives for achieving given objectives as well as

comparing and evaluating new program proposals. In actual practice, however, institutions have rigidities which cannot be altered easily in a short period of time.

Existing programs are not easily subject to major changes primarily because of the human resources associated with the programs. New program proposals should be evaluated on their own merits. Comparison of existing programs with proposed programs, nevertheless, serves a useful function as feedback to planners who may be able to effect gradual changes in existing programs over the longer term. Such comparison is also a useful device for assessing relative effectiveness where absolute criteria for program evaluation are difficult to formulate or implement. The comparative technique permits at least some questioning of programs.

Analysis of the role projected for faculty in program proposals is very important. Faculty activity analysis takes on a different form depending on what the proposal is. For example, a proposal may suggest the setting up of an instructional program in a subject field that an institution previously did not include in its curriculum. Analytical review of the proposal in terms of resources utilized in similar programs may provide a satisfactory basis for evaluating the realism of the resource requests.

A proposal may advocate establishing an instruction program with implications for the teaching process. In such a case existing benchmarks may not be useful. An example would be utilizing taped lectures and thus

substituting capital for individual faculty/student contact time. Or, a course method of instruction could be replaced with an apprentice type of instruction. However, if the outputs produced by two different methods of instruction are similar and interchangeable, then a very useful comparison can be made between the resources required by the different methods of instruction utilized in the same program.

Finally, if a new proposal is going to cost more, those who evaluate the program should be able to determine if the outputs of the new proposal warrant the commitment of additional resources. Perhaps the output can be produced in greater quantity, or a better one can be achieved.

In each example, it is clear that faculty activity analysis essentially takes the form of examining faculty contributions to the educational process as well as to the outputs of that process. The questions to be answered relate to how many faculty with what skills are needed, how they are to interact with other resources, and what outputs will result from this combination of resources. By comparison with similar programs, an assessment can be made of whether the "best" process has been chosen. In essence the role of faculty activity analysis with respect to the program review and evaluation function is the same as it is with respect to the long-range planning function, except that the time frame is different. For both long-range planning and program review, faculty activity analysis is a method for discerning the manner in which resources are linked to outputs.

3. The Budgeting Function

The budgeting function consists of providing resources for specific programs or organizational units charged with particular objectives. Program review and evaluation must be subordinated to a larger process of resolving conflicting demands on resources. If an integrated financial policy is to be an outcome of the budgeting process, then actual resource allocation decisions may differ from those suggested by program evaluation when other factors are taken into consideration. Competition with other institutions may affect programs differently than does intra-institutional analysis of these same programs. Equity considerations within and among various organizational units may alter the factors that ultimately determine workload or salaries. Furthermore, resource allocation may occur on the basis of a higher level of program aggregation than the specific programs submitted for review and evaluation. What is needed for the budgetary process, then, is a reliable method of allocation that will ultimately make sense at the individual program level.

The primary contribution of faculty activity analysis to the budgeting function is to provide a basis for assessing faculty workloads in order to estimate the total resource requirements needed for the institution as a whole. Faculty activity analysis also provides a basis for distributing these total resources to programs at the campus, school, or

college level. In order to perform workload analysis, factors that are affected by faculty workload such as enrollments, educational policies concerning class size, and contact hours must also be analyzed.

4. The Resource Utilization Analysis Function

Resource utilization analysis has several applications. In one case it may involve determining the cost of a program or some other variable after the expenditures actually have been incurred in order to determine the relationship between allocations, expenditures, and opportunity costs for proposed programs and projects. Costing also may take the form of experimenting with hypothetical situations, changing policy parameters, and trying to assess what effect such changes will have on program costs or on the costs of some other variable of interest to the decision maker. Costing studies may be used in retrospect to determine if the faculty resources <u>used</u> in specific programs were the same as those <u>allocated</u> to those same problems.

If designed properly, an analysis of faculty activities and their relationship to programs can be used to establish a basis not only for allocating faculty salaries and benefit expenditures across programs, but also for establishing proration rules for allocating other kinds of expenditures to various programs. Faculty activity surveys also may be useful as a base for making future projections of cost if proposals for new programs or expanded programs are

similar enough to current programs to make such a comparison meaningful. In this context, faculty activity analysis can be beneficial as a check of simulation models to determine if certain hypothetical situations will produce results similar to what has been experienced.

> Costing is an area where substantial conceptualization is necessary, particularly in determining what should be costed, how, and what criteria can be used to evaluate the cost. The Cost Finding Principles Project of the NCHEMS program is designed to meet these needs. (Ziemer et al., 1971)

These four functions of faculty activity analysis all pertain primarily to the usefulness of such analyses at the organizational level. There is an equally appropriate and important use for activity surveys which relates primarily to the concerns of the individual. This may be referred to as the equity function and deals with the assessment and establishment of equity of workload assignment and performance between and among faculty members.

Essential Issues

Before any approach to analyzing faculty activities can be fashioned, consideration must be given to problems and issues that must be addressed. Generally, these issues concern:

- °Conceptual Boundaries
- °Data Gathering Techniques
- °Data Analysis Problems

1. Conceptual Boundaries

Of major importance to the internal integrity, consistency, and scope of any faculty activity analysis are decisions that define the conceptual boundaries of the analysis. Definition of these limits is a function not only of the purposes of the survey but also of the manner in which the designers of the survey feel these purposes should be achieved. In their deliberations concerning scope, purposes, and conceptual boundaries, planners must resolve a variety of problems.

a. Assignment versus Activity versus Effort

Assignments, as used here, are those components of faculty workload that are expected to be performed in return for a salary. Assignments are expected tasks. Assignments may be dimensioned in percentages of FTE, in hours of time, or some arbitrary, weighted scale. Typical assignments consist of such responsibilities as specific courses, research projects, administrative posts, committee seats, and a number of student advisees. A few institutions have established explicit procedures for making definite assignments to faculty for their responsibilities. If resource utilization analysis is done on the basis of faculty assignments, the results are in terms of expected or budgeted costs. Such results are important for projecting resource needs. It is not clear, however,

that faculty assignment analysis is sufficient for the resource utilization function. Nor is it clear that assignment analysis alone is sufficient for departmental administrative needs.

Whereas assignments are the expected tasks, activities are the tasks actually performed. They may be assigned or unassigned, depending upon institutional practice. For example, one assignment may be to teach a specific course. In order to fulfill that assignment, the faculty member engages in specific activities such as preparing the course outline, teaching, advising course registrants, evaluating student progress, and grading. These are activities that the faculty member performs in order to complete the assignment. Moreover, faculty also engage in other tasks that are perhaps unassigned such as writing a book, public lecturing, or participating on committees.

Activities may be aggregated into sets of activities that correspond directly to specific assignments. For example, all activities related to teaching a particular course (such as preparation, grading, and advising) could be aggregated into one category, perhaps called "Teaching Activities." Other activities could be similarly categorized.

Not all institutions make specific assignments, but in cases where such is done, the assignment (perhaps in terms of percentage of FTE) could be contrasted directly with the corresponding set of activities (calculated in terms of percentage of the total time spent). A study based on activities would provide the basis for examining just how realistic faculty assignments have been. Not only is it conceivable that assignments could be improved, but also that the activity analysis could help department or unit chairmen to indicate possible alternative uses of time, suggest better distributions of resources, and discover overloads and areas where additional help (professional or clerical) may be required.

Effort constitutes a different dimension of faculty workload. To analyze effort is not only to measure time spent performing certain activities but also to imply an ability to measure intensity of involvement, the degree to which abilities are involved and challenged, and the relationships between these factors and the instructional process. Essentially, faculty effort analysis is input analysis. As such, effort analysis seems to be beyond the present scope of the faculty activity analysis project.

b. Kinds of Workloads to be Included

Regardless of whether one chooses to analyze assignments, activities, or effort, the choice must be made as to the range of these aspects of workload. For example, one can choose to look at the "full professional life," that is, the full range of all activities in which faculty engage. One can analyze workload patterns that are assigned as a result of an appointment contract. Or perhaps interest may be confined only to a very narrow range of workload such as teaching functions. Failure to describe precisely the scope of the workload to be studied may result in disputable and unacceptable results. Much difficulty and controversy have arisen in connection with defending faculty workloads because proponents and opponents have failed to agree upon the range of workload being discussed.

A frequent criticism of faculty is that a relatively small percentage of their time is devoted to instructional activities whereas significant proportions are devoted to research and other noninstitutional activities. With respect to resource allocation and utilization analyses, the inclusion of all activities comprising the 55 to 60 hour work week may result in allocation and costing bases that are misleading and conceptually ambiguous. However, questions of workload equity and faculty effort may well require

that the entire range of faculty activities be analyzed. Therefore, it is of utmost importance to define the scope or range of workload patterns to be studied.

c. Relationships of Faculty Resources to Institutional Programs

Faculty resource surveys generally have dealt almost entirely with what faculty are expected to do or what they have done. They have been one dimensional. The University of California Study (1969; see also Appendix B) demonstrates that an inventory of activities alone does not give sufficient information to discover the outcomes of what faculty actually do. In many cases there has been no need to ask questions about the effects of activities. In the context of planning, programming, and budgeting, however, there is a need to determine not only the nature of faculty workload activities but also how these contribute to the achievement of institutional objectives. If program planning and budgeting is to become a viable aid to institutional management, methods must be found for relating faculty resources to the objectives of the institution.

The definition of the conceptual boundaries of any faculty resource study is paramount to the effectiveness, integrity, and reliability of the study. Once the purposes have been firmly determined, the study

designers must concern themselves with the optimal manner in which these purposes can be obtained.

2. Data Gathering Techniques

Once the conceptual structure of the survey has been defined, issues pertaining to methods of data collection and to definitions of data elements and study population must be addressed.

a. Specification of Objectives

Program planning and budgeting require objectives to be in terms of quantifiable outputs. Therefore, a method of handling the contributions of faculty resources to various institutional "outputs" is essential if program planning and budgeting techniques are to be used.

If there is a decision to associate faculty activities or assignments with institutional objectives, then a great deal of thought must be given to the manner in which this association can be accomplished.

The University of California study (1969) was able to implement a productive and interesting technique for handling this problem. The procedures involved asking a sample of various faculty ranks from several institutions in the system to indicate their activities and how these activities contributed to a variety

of proxies for outputs, such as instruction and new knowledge. The survey form also permitted faculty to indicate activities contributing to multiple output proxies and to combinations of output proxies.

The state of the art of measuring actual higher education outputs is not advanced to the point where outputs can be the measure of institutional objectives. Therefore, a measure that can substitute for outputs must be devised. A variety of options is available to the designer. One is to fashion a list of "output proxies," as did the University of California. Another option is to devise a list or classification of the programs of higher education. In such a case it would be assumed that each program relates to an institutional objective in some definable way.

One of the most frequent (and perhaps justifiable) faculty arguments against any sort of faculty resource survey is that typically there is no opportunity to indicate that their activities contribute jointly to a variety of institutional objectives. That is, an activity such as research not only may produce new knowledge, but also may disseminate knowledge. Some technique should be designed that will allow the faculty to indicate these "joint products."

The joint products issue becomes especially thorny in the context of making policy decisions. When and if meaningful output measures are established, joint product allocations can be handled in a straightforward manner. For example, a faculty member may respond that one hour's research activity includes 35 minutes that he believes contribute to organized research objectives, 20 minutes that contribute jointly to the instruction and organized research objectives, and 5 minutes that contribute directly to instruction objectives. An output measure could then indicate that this hour produces 73 units of research output and 24 units of instruction output. If it were determined that an hour's classroom time produces 46 units of instruction output (the units coming from the hypothetical measure, as yet not devised), it could be possible to determine the least cost input combination that could achieve a given level of instruction plus research outputs.

For such purposes as costing, joint products can be handled by prorating into single categories. A case can be made for having these prorations done by faculty as well as for having them done administratively. Obviously, joint products as yet cannot be handled elegantly.

b. Specification of Workload Categories

The effectiveness of a faculty survey will be enhanced if concrete definitions of the activity or assignment categories are designed. Many lists of "activity" categories seem to include not only activities but also descriptions of programs in which the activity occurs or to which it contributes. Many lists, for example, include categories entitled instruction, sponsored research, and public service. The problem stems from the fact that activities or assignments are only one dimension; an important second dimension is the program in which they occur or to which they contribute. For example, teaching activities may occur in, or contribute to, instructional programs, public service programs, and even research programs. Administrative activities may occur in the same programs. The point is that activity and assignment categories need to be defined in such a way that they are not confounded with programs, products, or objectives.

The number of assignment categories may affect the results. A proliferation of categories may tend to expand the opportunities for indicating activities engaged in, thus potentially expanding the average work week. Care must be taken to limit the number of categories.

Finally, there is a problem in defining categories in such a way that they are mutually exclusive and exhaustive within the context of the objectives of the survey.

c. Definition of the Study Population

The problem of determining how to define which persons are to be included in the survey necessarily must be an institutional consideration. Some surveys have been restricted to tenured or ranked faculty; some include all those who have faculty appointments; others exclude teaching assistants, adjunct instructional personnel, research faculty, faculty on sabbatical, and part-time personnel. Included may be just one rank of faculty, or all full-time faculty (including or excluding graduate assistants), persons with appointments, or even some combinations of the above. The scope of the study population is, in essence, a function of the users and the uses to be made of the data. Nevertheless, the decision is essential to the process of gathering the data.

d. Time Perspectives

Several questions relating to time must be considered before a useful survey can be designed. Among the most important are:

1. Over what period of time should the activity or assignment survey apply? An average week? The fall term? The academic year? The fiscal year?

2. How frequently should the survey be conducted? On-going? Every term? Once each year? Every two to three years?

3. When should the survey be conducted? Second week of the fall term? At the beginning of the term or year? At the end of the term or year?

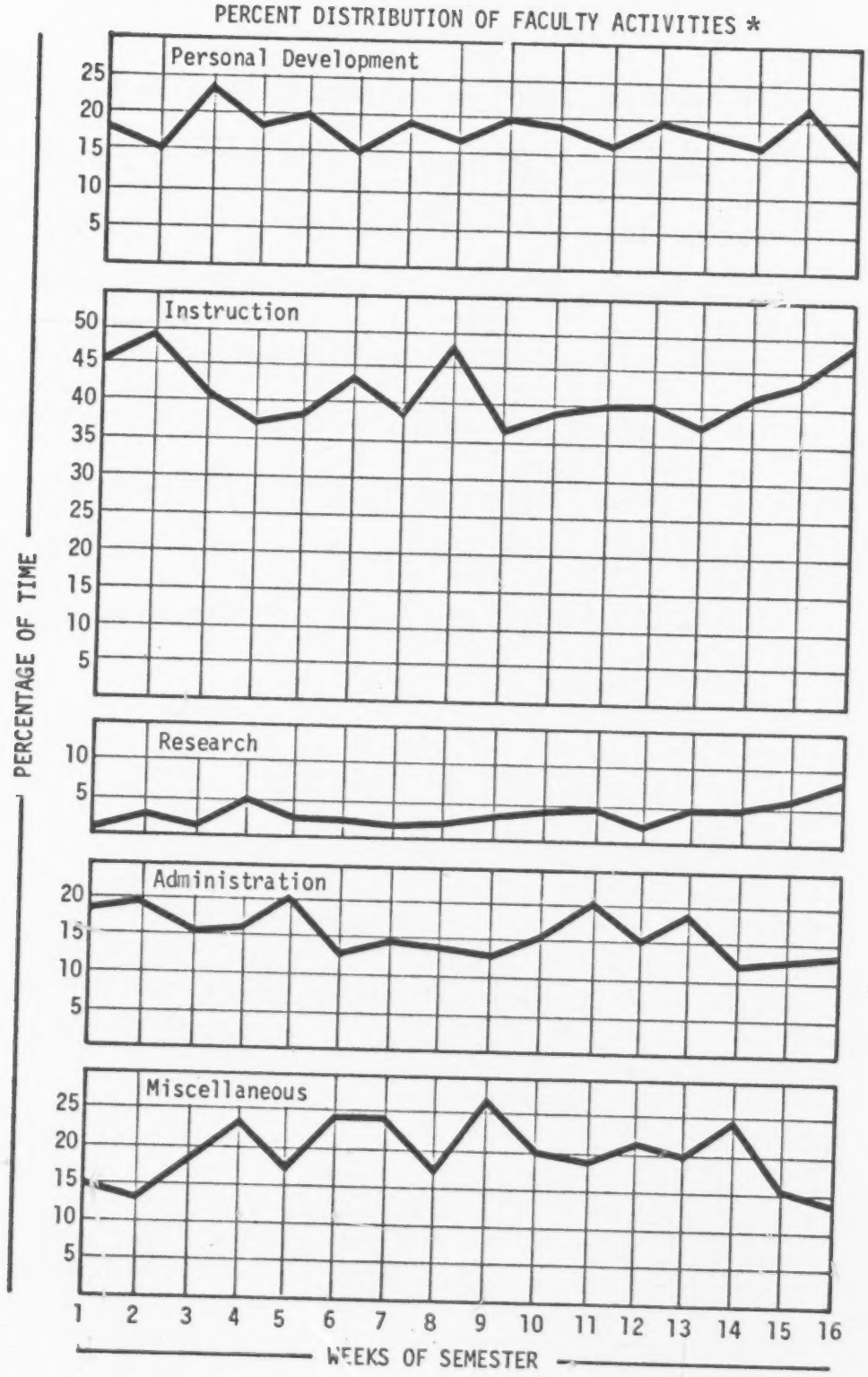
4. If an approach compatible with program planning and budgeting techniques is selected, what should be the length of the time frame in which the effects of an activity or assignment are considered to contribute to a program or jointly to several programs?

Most of the questions relative to time-perspective issues originate from problems that arise because of the complex nature and variability of faculty activities. In the context of activities analyses, variability questions loom large. Different disciplines require different amounts and kinds of activities. Even within a given discipline, activities vary as a function of specific assignments or lack thereof as well as of the capabilities and interests of individual faculty members.

If the time spent in various kinds of activities by members of an academic department or unit were to be aggregated into a few categories, the resultant chart very likely would show a marked variation over a given period of time. An example of this is shown in Figure 1 for a department of 20 faculty. Most of this variation is due to the nature of demands that are placed on faculty by instructional activities such as preparing materials and advising prior to or at the beginning of the course, writing examinations and evaluations at mid-term, and conducting finals.

FIGURE 1

PERCENT DISTRIBUTION OF FACULTY ACTIVITIES *



*The activity categories are similar to but do not correspond exactly with the PCS categories. They do serve, however, to support the point being made.

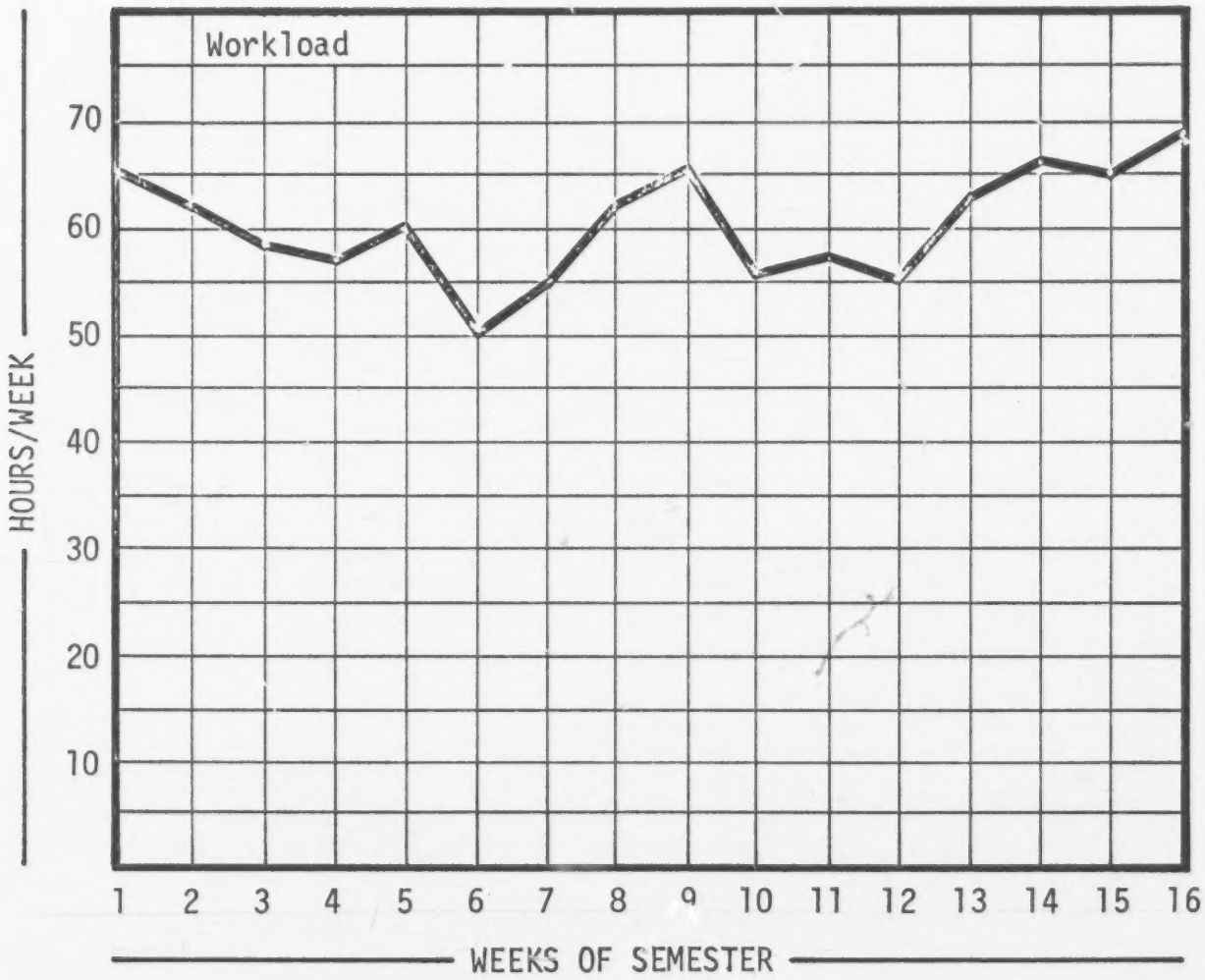
Source: Ritchey, John A. "Utilization of Engineering Faculty Time." Journal of Engineering Education, 50 (December, 1959), 244-250.

Figure 1 arrays only the percentage of time devoted to each of the activities. However, a variation is likely in the number of hours worked per week during the semester for which these percentages have been calculated. Figure 2 demonstrates this.

Note: The data in this figure are derived from the data in Figure 1.

FIGURE 2

WEEKLY AVERAGE WORK LOAD*

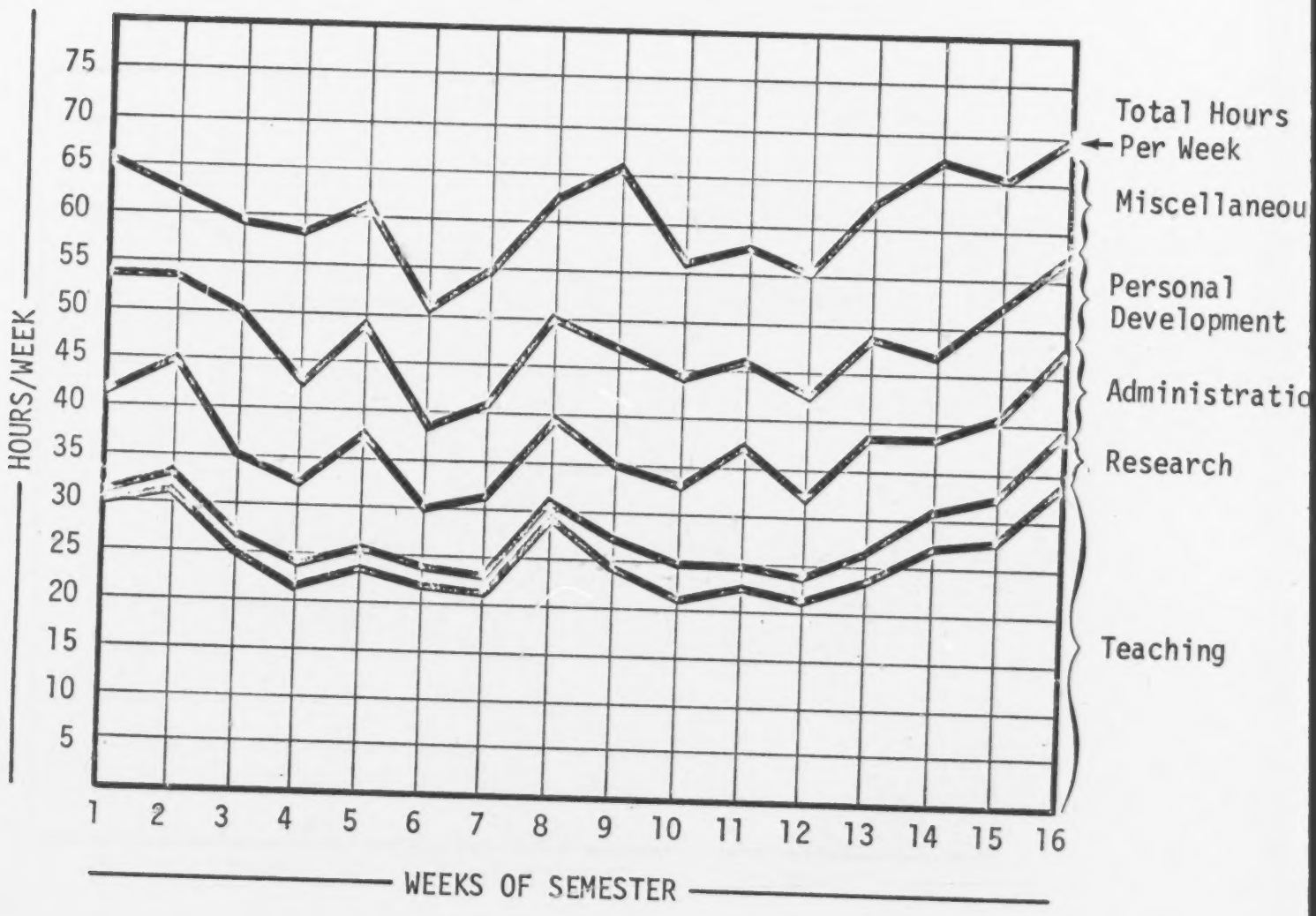


*The data in this table are hypothetical. Nevertheless, they conform generally to the feelings of many faculty, administrators, and researchers whose investigations have indicated that the work weeks do fluctuate over academic terms.

Figures 1 and 2 indicate that work habits and requirements of faculty produce significant deviations from the mean work week. The net result is a very complex pattern of hours worked, shown in Figure 3.

FIGURE 3

DISTRIBUTION OF WEEKLY AVERAGE WORK LOAD



The problem is compounded by the fact that faculty rarely devote large blocks of time to single activities. Rather, they are more likely to prepare for class for an hour, attend committee meetings for 75 minutes, teach class for 45 or 50 minutes, discuss thesis drafts for 30 minutes, and advise students for 15 to 20 minutes. This phenomenon compounds the problem of trying to estimate hours spent in a variety of activities over a given period of time. The time period over which the survey is to be conducted also must be determined. Approaches range from average time in various activities estimated for the entire academic term (or year) to hours during a typical week. Regardless of the difficulties mentioned in preceding paragraphs, techniques may be devised to use a typical or average week as the time frame.

Another problem deals with the length of time over which the recall of activities takes place. If this period of time is as long as several weeks, then peak activities become more significant in recall but the time relationship of one peak activity to another fades. Therefore, if a faculty member is asked to estimate and record his average work week over the previous academic term, those peak periods for each type of activity are most apt to be remembered (see Figures 2 and 3) and the estimate of an average work week may tend to be inflated. For example, teaching activity may be most intense during the first, sixth, and twelfth weeks of the term; research during the second,

third, and seventh; administrative or committee activities, the fourth and ninth. Unfortunately, in recall the tendency will be to blend all of these peaks into one average week.

The necessary frequency of collecting faculty activity data to maintain a valid set of estimates depends on the stability (through time) of the measures of activity that are needed for analysis. For an individual professor, these measures are likely to vary markedly from one term to the next but for units or programs there may be less variation. Individual difference is induced by variations in activities for successive terms. For example, during one quarter a faculty member may have a regular academic load but the next quarter he may have an extra course, be on a special administrative task force, and be heavily involved in a research project. More frequent surveys through time are a method of insuring that any instability is monitored. However, more frequent surveys usually involve higher costs.

Most planning analyses do not require measures from individual faculty members. Measures representing the aggregate of the assignments and/or activities from several faculty members from the same unit may be sufficient. These are likely to be quite stable from year to year, unless drastic changes occur in the operation of the unit. Periodic monitoring may be enough to indicate if changes are occurring in the aggregates.

If periodic work sampling techniques indicate that the measures are shifting, then a more frequent and/or thorough study can be performed to update the estimates. However, information concerning faculty activities may be needed more frequently for purposes of unit planning and administration. Ultimately each institution must decide on the relative merits of a specific approach in light of the potential uses of the data.

e. Measures of Activity

The question about the nature of the quantitative measure of activity must be answered. Hours per academic term, average hours per average or specific week, and/or percentage of time spent performing various activities all are possible measures (Stecklein, 1971; National Science Foundation, 1965).

If faculty put in a fixed work week, say 40 hours, it would make no difference whether activities were reported in hours or percentages, because one can easily be converted to the other. However, most faculty (like other professional groups) work more than 40 hours and variation above (and sometimes below) that figure is enormous. These variations bear little relationship to the kinds of activities assigned. That portion of the work week above some limit is an independent variable for all practical purposes and reflects the professional life- and teaching-style of faculty.

However, another set of considerations must be taken into account. In the context of program planning and budgeting, it has been argued that it is important to understand both the time spent by faculty in various activities and the contribution of these activities to various institutional objectives. For broad purposes, such as determining the relative contributions of different activities to objectives, it does not seem to matter whether hours or percentages are used. However, activity data also serve other important functions such as fund acquisition and resource allocation. In order to determine how many faculty positions are needed and what staffing patterns are appropriate to different programs, the data should be in a form that can be related quantitatively to enrollments and workloads.

If faculty time devoted to activities is reported in terms of hours, it becomes a simple, mathematical operation to convert these hours to percentages. The reverse is not true. Data in terms of percentages cannot be converted to hours, unless there is a work week figure on which to base the conversions. This work week base cannot be a standard work week for all faculty, since that concept is not consistent with the flexibility associated with a professional occupation.

f. Data Collection

The issue of data collection pertains to determining who is the most reliable source for the information and considerations of how the data are to be gathered. The faculty member may be required to furnish all of the data. On the other hand, existing institutional files may be searched to gather as much information as possible prior to distributing the survey instrument to the faculty. Department or unit chairmen and students are also possible sources for some data. Aggregate information on assignments may be gathered from department chairmen, or department or unit chairmen may complete activity forms and then ask each faculty member to verify.

The use of questionnaires has been accepted in many institutions as an acceptable method of obtaining data relating to faculty resources. In a few cases logs or dairies have been used in an attempt to improve accuracy. Work sampling by observers has been used (Ritchey, 1959b). An experiment in random self-sampling has been completed at the University of Minnesota (Lorents, 1971). The study showed in the case of the sample surveyed that faculty estimates of time to be spent in various activities, time actually spent in various activities, and after the fact estimates of time spent in those same activities compared quite favorably with each other.

Logs and work sampling appear to be useful for special studies and for periodic validation of results obtained by questionnaires that rely on recall. The log method may also require recall if the faculty member does not keep the log current. However, the length of time over which the recall and aggregation take place is much shorter for logs than for most questionnaires.

Interviews subsequent to questionnaires seem to be quite useful for additional data collection, interpretation, and follow-up concerning faculty activities (University of California, 1969). An interview generally allows more detailed information to be collected in a systematic manner. The consistency of interpretation of definitions and editing (through further questioning) of illogical or contradictory responses is also one of the advantages gained through follow-up interviews. Well-trained interviewers are a requirement to realize these advantages. However, the time and expense involved in the use of interviewers usually precludes their frequent use.

When one evaluates collection techniques, three criteria should be considered:

- °validity and reliability
- °faculty acceptance
- °cost

Validity refers to the total error that a method produces, whereas reliability is the capacity of the method to reproduce similar results in similar situations. Questionnaires appear to satisfy the reliability criterion, but the resultant validity may not always be acceptable. The reliability of a completed questionnaire may be a result of faculty answering what they think ought to be the acceptable time distribution. Validity should increase with the use of logs, work sampling, and interview methods. Faculty dissidence is difficult to predict, and no systematic study of faculty reaction to various methods for obtaining activity or assignment data is available. The costs of the various methods can be computed by combining the design, distribution, collection, and processing costs with the cost of faculty time spent providing the data.

One simple rule that will generally improve any collection method is as follows: <u>If it is accurate and current, data that are available from other sources should be obtained from these sources and should not be sought from faculty members</u>. Faculty activity analysis procedures should seek to minimize the amount of data that the faculty member must supply and thereby conserve faculty time. However, it may be desirable to check certain data that have been collected already. These checks can be made by preprinting the activity forms with the existing

data. The faculty member will simply note exceptions. Exception reporting as a means of verifying and/or updating faculty data bases should help to decrease any faculty resistence.

g. Total Population Surveys Versus Sampling Studies

There have been examples of both total population and sampling studies as well as combinations and variations of the two. Which is to be used? The determination will depend on both the expected use of the data and the size of the institution.

Many faculty and administrators believe that there are so many "atypical" situations that sampling will not give adequate accuracy. However, many faculty resource data needed at an institutional level consist of averages. That is not to say that individual behavior should not be examined. Rather the examination of individual behavior, from which averages are derived, can be done on the basis of samples. Of course, there are no "typical" faculty members and extreme care must be taken when sampling is used so as not to systematically omit any significantly "atypical" faculty. Often many groups of faculty exclude themselves by refusing to respond to interviews and/or questionnaires. Such exclusion is surely a guarantee of biased results.

When sampling is used, one must realize that a definite relationship exists between the level of aggregation and the size of the sample. The more detailed the inferences that are needed, the larger the sample size must be. In some cases it may be necessary to obtain information from 100 per cent of the faculty. If a small unit with five faculty wishes to know how instruction outputs are broken down by detailed activity categories and how this relates to <u>particular</u> programs or assignments, then a total population survey would seem reasonable. On the other hand, if only aggregate hours contributing to various institutional programs are required, then a properly designed sample of faculty would certainly be appropriate and generally less expensive to implement.

A possible advantage of sampling may be that errors in the data collection can often be reduced significantly by work sampling techniques. The controls and follow-up (interviews) can be performed by a few highly skilled individuals. Total population data are virtually <u>never</u> perfect; they contain errors due to interpretation of questions, processing, and failures to respond. Sample estimates may include both nonsampling as well as sampling errors due to failure to obtain information from every member of the required set. However, it is often possible through sampling to decrease the nonsampling errors by a greater

amount than the sampling errors are increased. If this is the case, then sampling would be appropriate for collection of faculty activity data because fewer faculty have to be interrupted and total costs can be reduced.

h. Supplementary Data

Information concerning faculty and their contributions to institutional objectives is useful for program planning and budgeting purposes if gathered and analyzed in conjunction with the wealth of other information that pertains to faculty as an institutional resource. The criterion for selecting which information is to be collected should be: Will the data be supportive of better institutional management? These supporting data should complement attempts to attain the objectives of the faculty activity analysis. However, although faculty activity analysis relates to four well-defined functions of higher education management (planning, program/review and evaluation, resource allocation, and resource utilization), various users require different kinds and levels of faculty information in order to attain these objectives. Table 1 lists a number of potential users as well as possible uses of faculty activity data.

TABLE 1

USERS AND USES

Users	Uses
a. Faculty Members	1. To review and evaluate time allocations for self regulation or comparison purposes
	2. To make explicit the complex nature of what faculty produce
	3. To describe the link between teaching, research, and other types of activities
b. Unit Chairmen and Academic Administrators	1. To gain a comprehensive view of how faculty time contributes to various programs
	2. To gain an understanding of the relationship between assignments and activities
	3. To improve the allocation of faculty resources
c. Policy makers	1. To assist in making resource allocations to organization units
	2. To establish a common base for discussing resource needs and program objectives with administrators, planners, and policy makers
d. Institutional Budgeters (campus and Systemwide)	1. To assist in the determination of faculty funding needs in program budgeting format for differing enrollment mixes by program and level, as well as under different staffing patterns
	2. To provide input and multiyear cost estimates of programs and changes in them
	3. To obtain and to support the disaggregation of program costs by level of course, level of student, and other appropriate variables
	4. To support the measurement of costs
	5. To establish constraints of alternative faculty resource allocation to programs
	6. To supply input to models that simulate institutional programs and processes in order to discover resource implications of alternative policies

TABLE 1 - Conclusion

Users	Uses
e. Institutional Decision Makers (Executives, Governing Boards)	1. To improve the bases on which choices are made
	2. To provide demographic data for cost benefit analysis of federal programs
	3. To assist in the accommodation of multiple, overlapping instititional objectives for which there is competition for resources
f. State Coordinating Agencies	1. To understand resource implications of making policy recommendations for different institutions of higher education with different objectives (similar to objectives of institutional decision makers)
g. State Legislators and Executives	1. To authorize and allocate funds on a basis that justifies resource requirements in terms of institutional objectives
	2. To be able to justify their decisions to the public on a factual basis
h. Federal Government	1. To furnish information to Congressional and executive policy makers concerned with objectives and financing of higher education

Clearly, faculty activity analysis information has many users. Their various data requirements help determine the nature, scope, and level of detail of the survey. Faculty activity or assignment information is but one of many types of data that are needed. The following list illustrates a set of information elements that may supplement analyses of faculty activities.

- Number and level of courses taught
- Contact hours by course and type of instruction
- Credit hours by course

- Number of student advisees by level of student
- Number of active thesis advisees by level of student
- Number and specification of committee assignments
- Research contracts by contract number and discipline
- On-campus versus off-campus activities
- Number of students by level enrolled by level of course
- Number of new course preparations
- Counselorships for student groups
- Chairmanships of institutional committees
- Number of employees supervised
- Officer of extrainstitutional organizations
- Publications

A number of additional items may be important for linking faculty activity data to other institutional information, such as personnel files and financial files. Some of these may be

- Name
- Department
- Social Security number
- Faculty rank
- Salary
- Accounts

3. Data Analysis Problems

a. Analytical Questions

Data analysis bears a very specific relationship to the questions asked and to the information gathered in any faculty activity study. Data restrictions will preclude conducting some types of analyses. Therefore, it is most important that the types of questions addressed be considered prior to and during the design of the data-gathering instrument.

Another consideration acting in league with types of analyses to be performed concerns the user requirements. These were indicated by the uses listed in Table 1. The range of analysis to be performed is directly a function of the supporting information collected. Exclusion of some data necessarily precludes some types of analyses.

Institutional planners and administrators may need information to help answer the following questions:

- Are faculty efforts devoted to the objectives of the institution?

- What results are desired?

- Do faculty efforts produce the results that are desired?

- How does an institution know if the desired results have been obtained?

- Is sufficient time devoted to certain activities to realize the objectives of the institution?

- What can be done to improve the results of faculty activities?

- Can anything be done to reorganize the activities or assignments to improve the achievement of objectives?

- What are the effects of modifying the mix of institutional resources?

- Is there a controllable relationship between faculty activities and the desired results to a demonstrable degree so that a decision maker or resource allocator can redistribute his faculty resources to achieve the existing level of results with fewer overall resources or increase the level of results by better utilization of existing resources?

- What are the costs associated with using faculty versus other types of resources?

- Do the relative prices of the various resources indicate that substitutions among resource groups can achieve the same level of results at lower costs?

b. Funding and Budgeting Implications

Faculty members frequently maintain partial appointments in two or more organization units and, therefore, receive their salary from more than one account. There is, accordingly, a need to estimate how various activities relate to different organizational units.

- Some faculty teach in a single organization unit.
- Some faculty participate in courses that cross organization unit lines.
- Some faculty have multiple appointments in several organization units.
- Some faculty are supported from general and contract research funds.
- Some faculty contribute services as part of "matching fund" agreements associated with grants.

In general, separate reporting systems are used to meet separate reporting requirements. Individual contracts are reported

separately, and only in organized course activities are cross-organization unit contributions recognized. These conventions are usually adhered to for purposes of mechanical simplicity, but they do raise faculty irritation levels because of multiple reporting requirements. Moreover, specific sources of funding are most generally regarded as an administrative/accounting problem rather than as identifiers that are germane to the activities that faculty are performing.

c. Validity of Data

One of the most vexing problems concerning analysis of faculty time devoted to activities has to do with the validity of the data collected. An activity analysis is an extremely complex proposition that requires considerable cooperation and understanding on the part of faculty and academic administrators. Unless there is a clear understanding of the use of the data and unless there is good feedback of results, the value and quality of data are highly suspect. On the other hand, many of the usual complaints that questions are incomplete and that requested responses are inappropriate are really applying "calipers to jello." At the current state of development, a rough answer is better than the tenuous assumptions that serve in the absence of data.

SECTION 3

SUMMARY

The purposes of the Faculty Activity Analysis project are to develop (1) techniques for collecting data that will serve as a foundation for allocating faculty salaries to institutional programs and (2) standard procedures for analyzing faculty activities.

Higher education generally has lacked the structure and format necessary to accomplish the first of these two objectives. Neither the allocation techniques nor the program structure has been generally available. However, the recent trend toward program planning and budgeting is requiring their general availability. With respect to the second objective, there has been a failure to focus on a purpose for analyzing faculty activities. Original objectives of discovering better instructional methods often have given way to conducting faculty resource studies for the sake of doing them or for the sake of fulfilling legislative dictums.

This paper has outlined the issues that must be addressed during the process of developing a method to survey faculty activity. Subsequent papers will be devoted to the actual design of procedures, definitions, instructions, and standard survey documents for gathering data to support analyses at the institutional level.

APPENDIX A

PRODUCTS OF THE FAA PROJECT

APPENDIX A

PRODUCTS OF THE FAA PROJECT

The project will produce at least four products.

1. This technical report sets the topic of faculty activity analysis into the context of higher education management and addresses issues pertaining to the design of faculty activity analysis surveys. (This document is that report.)

2. The second paper will be in the form of a manual containing the explanation, instructions, and example survey instrument of standard procedures for collecting information on faculty activities as recommended by NCHEMS. Included in the standard procedures will be a list of activity categories and associated definitions. It is intended that the procedures will be pilot tested at a number of institutions.

3. The third product of the project will be a manual that describes procedures and techniques for analyzing data on faculty activities. A series of computer routines will be included to assist in the compilation and analysis of the resultant data. The techniques and computer routines will be pilot tested at a number of institutions.

4. The fourth product is intended to be a technical report describing the relationship of faculty to the outputs of higher education and the faculty role as it relates to the mix of resources that are combined to produce these outputs, i.e., the production function of higher education.

APPENDIX B

LITERATURE REVIEW

APPENDIX B

LITERATURE REVIEW

Information for this appendix has been gathered that is related to most of the critical issues discussed in this paper. Over the years a wealth of material has been written and published on a broad range of subjects dealing with faculty as a resource. Several in-depth reviews and literature searches also have been published. A rather extensive bibliography is being collected in which this multitude of documents and reviews will be referenced. However, no attempt has been made to duplicate those efforts in this review.

A. Purposes of Faculty Activity Analysis

Purposes for gathering data concerning the faculty resources have been almost as abundant as the number of studies. Historically, concerns were focused on simple inquiry as to what faculty do. Recently, the studies have been much more sophisticated investigations of the utilization of faculty as an institutional resource.

Stecklein (1961) says that most studies are initiated by administrators for a variety of administrative uses, such as:

1. Identifying inequities in load
2. Obtaining assignment guidelines
3. Discovering what activities comsume faculty time
4. Recommending (indirectly) promotions and salary increases
5. Supporting changes in staffing and curriculum requests

Cannell (1959) feels that faculty activities data are useful for similar purposes. He lists, for example:

1. Checking inequalities
2. Detecting trends
3. Guiding assignment changes
4. Supporting scheduling refinements
5. Suggesting variations in the number of sections needed per course
6. Establishing measures of output to support budget requests
7. Determining subsequent staffing needs

Hauck (1969) suggests the use of the data to correct assignment inaccuracies that have arisen due to difference in preparation and contact hour requirements. Patten and Beames (1969) see the data as being essential for apportioning the teaching load among the available faculty. Bolton (1965) recommends the analysis loads carried by individual faculty members for the purpose of acquiring an adequate faculty (in terms of number) and dividing the range of responsibilities among faculty numbers.

Hill (1969) perceives an interesting and important use for the data in that it may be one source for understanding individual and departmental morale problems. He says in essence that heavy loads

often breed drudges who lack initiative and produce little whereas light loads generally lack challenge. Hill says that the challenge for the administrator lies in establishing a useful measure for assessing faculty loads that can reveal these sorts of problems.

The purpose of the 1968-69 University of California study (1969) of faculty activities was stated in terms of collecting and analyzing data on the utilization of the faculty.

Doi's article (1961) on the proper use of data gathering on faculty load listed the following uses and purposes:

1. Such information assists administrative officers and faculty groups in assessing the general efficiency and economy of instructional programs.

2. Faculty load studies assist in the development of objective criteria for determining instructional loads and staffing needs.

3. Faculty load data can be used to stimulate experimentation with instructional techniques and various class sizes.

4. The data can be useful for the planning of future expansion and changes in instructional programs. The institutions should be able to detect shifts in student interests and in the emphasis that faculty members might give to various subjects, including changes in level of courses taught by senior and junior members of the staff.

5. Faculty load studies can be used for determining the allocation of funds. The data are essential for identifying those departments that have the greatest use for additional staff members.

Many persons have written about the purposes of faculty studies and the uses of the resultant data at levels above the individual institution. Katz (1969), in asking faculty at the University of Washington to complete a questionnaire, says that the legislature previously had conducted studies based on contact hours which resulted in ar incomplete picture of faculty assignments. Therefore, he was asking for data that not only would bring the picture into better focus but also would justify budget requests and help "to guard against deterioration of support levels."

Coffelt (1966) recommended the study of faculty teaching loads throughout Oklahoma for the State Regents in order to provide:

1. Faculty load and educational program data that are helpful for statewide planning and coordination.

2. Objective data of value for governing boards for assessing the general efficiency of institutional operations, planning future expansion of programs, and determining staffing pattern needs.

Blee (1960) agrees that

> While coordinating decisions require something more than faculty work load data, it is true, nonetheless, that faculty work load data assembled in some manner or other are essential to the making of those decisions. If we should fail to devise suitable measures of faculty effort, the continued use of crude measures will be necessary.

Kelly (1960) discusses the interests of coordinating agencies in faculty load data, which are:

1. Determining services and programs to be provided
2. Establishing which institutions will provide these services and programs
3. Fixing levels of operating and capital funds
4. Formulating policies for operating the system
5. Making provisions for supervision

In summary, purposes for surveys of the use of faculty resources vary by the type of user, but generally are conducted to determine what faculty do, how they allocate their time, what are the departmental and institutional administrative needs, what are the required funding levels, and what is needed for statewide planning and coordination.

B. Assignment, Activity, and Effort

Although many studies have been and continue to gather data with respect to faculty assignments (Tennessee and Rensselaer Polytechnic Institute) and countless others based on faculty activities (California, Michigan, Minnesota, Washington, and Colorado), few deal with effort as defined in this paper. Lyons (1970) has summarized the results of a study done on a small sample of faculty at the University of Pittsburgh. He attempted to establish whether hours of time or the combination of hours of time and intensity of effort devoted to specific activities was the better measure of effort. As perceived by the faculty, the latter did not prove to be a better discriminator of effort than the former. This result, although not conclusive, is interesting and should spawn a number of similar studies.

C. Kinds of Activities to be Included

As indicated earlier, previous faculty activity surveys have been concerned with a variety of activities ranging from all activities

associated with the full professional life to just those that relate directly to instructional assignments. Reeves and Russell (1929) recognized the problem when they stated that teaching duties vary not only from institution to institution, but also from individual to individual.

Douglass and Romine (1950) determined that faculty load (and therefore a study of their activities) "includes the sum of all activities which take the time of a college or university teacher and which are related either directly or indirectly to his professional duties, responsibilities and interests."

In Ohio, a review (Ohio Inter-University Council of; 1970) of over 100 studies at institutions throughout the country verified the claim that faculty on the average work more than fifty hours per week. However, it was also discovered that comparisons of the activity components of these average work weeks were impossible for myriad reasons. Lack of definitional comparability and agreement as to the components comprising the load were the most conspicuous deterrents to comparability.

Lorents (1971) compiled a list of 19 activities that are related directly or indirectly to professional duties of the faculty. Some

of these obviously are to be included; others possibly. He cites professional development activities as one of the best examples of an activity that may or may not be included.

Bolton (1965) makes the following assumptions about the types of activities to be included:

1. The number of faculty available is finite.

2. There are certain tasks that the institution is required to perform. These are also finite in number, indefinite in character, variable, and subject to periodical examination.

3. There are certain tasks that the institution is expected to perform. These are defined differently by different individuals and groups and need periodic examination for purposes of clarity. These are finite in number, but more numerous than the required tasks.

4. There are certain tasks that are desirable for the institution to perform. These tend to be infinite in number, to be ill defined, and to elicit very little critical examination.

5. Professors exist in a variety of communities (e.g., department, college, university, neighborhood, regional and state public schools, national colleagues). These various communities tend to define the required, expected, and desirable tasks differently. As a result, personal aspirations of professors may tend to run counter to the defined tasks and expectations of the department and the university.

6. There are limitations that govern the quality and efficiency of work accomplished by faculty members. Time is one of these limiting factors. Unless faculty members are provided the time to accomplish those tasks that are defined as expectations and requirements of the job, evaluations or quality of performance tend to be unreliable and capricious. On the other hand, when time is provided, we can expect that differentiations of quality and quantity of productivity will be differentially rewarded.

D. Relationship of Activities to Institutional Objectives

Faculty activity analysis done in the context of PPBS necessarily must be related in some manner to institutional objectives. The Ohio study revealed the following:

> A comprehensive model of activities in support of the instructional, research and public service processes at the state

assisted universities does provide a valid basis for understanding the unique contribution of each institution to higher education. When supplemented by an analysis of relative sponsorship of these processes the model provides a valid basis for developing guidelines that relate faculty effort to sponsor goals.

Balderston (1970) in a memo to President Hitch at the University of California discussed studies of use of the faculty resource for determining unit costs. He states that a faculty study (for the purpose of determining unit costs) "requires the definition of a program structure and then the measurement and allocation of costs in that structure." The Faculty Effort and Output Study at the University of California (1969) "can be used," in Balderston's words, "to distribute the whole of the regular faculty departmental wage bill" to these programs.

Swanson (1966) considers the problem of connecting the faculty resource with institutional programs and objectives but sees the means of doing so not in terms of faculty activity analysis, but rather in terms of contact hour loads of FTE faculty.

The University of California (1969), The University of Michigan (1970), and the University of Minnesota (1970) are among the very few institutions at which attempts have been made to relate faculty activities to programs or objectives.

E. Specification of Programs

The three institutions where these attempts have been made all have specified the institutional objective component of the technique in a similar fashion. Rather than using programs or actual output measures, the following categories of proxies for outputs were specified (University of California, 1970):

1. Student Instruction
2. New Knowledge
3. Public Service
4. Facilitate Operations of the University
5. Instruction and New Knowledge
6. Instruction and Public Service
7. New Knowledge and Public Service
8. Instruction, New Knowledge, and Public Service

Especially significant is the recognition in the list of joint product categories where the product of the activity is not specifically identifiable. Lorents (1971) says, "As program structures are set up for universities, one can see how faculty effort of any individual faculty member can contribute to multiple programs."

F. Specification of Activities

The variety of activity categories is immense in the faculty activity analysis instruments that have been reviewed. A few from specific studies are listed on the following pages, followed by a chart in which the activity categories of several studies are contrasted.

Davis (1924) feels that the following types of activities should be included:

1. Number of minutes actually devoted to conducting classes

2. Number of minutes consumed in making specific preparation for conducting classes

3. Number of minutes actually required to grade papers, make reports and attend to other clerical matters relating to the classes

4. Engaging in civic and social affairs of various sorts, particularly in those that have for aims outcomes that relate to or supplement the work of the university or aid the instructor to a better understanding of his primary tasks, to acquaint himself more vitally with the needs and experiences of his students.

5. Visiting other institutions of learning occasionally in order to check his own theories and practices with those of his associates

6. Preparing for publication treatises and studies of general or specific educational nature

7. Private professional reading and reflections designed to improve his own power and skill

Knowles and White (1939) argue for the following categories:

1. Instruction Components

   a. The number of different courses for which he is responsible
   b. The nature and degree of difficulty of these courses
   c. The number and the characteristics of students enrolled in each course
   d. The time actually devoted to holding personal conferences with students in relationship to classes
   e. The size of classes and the character of students, ability, homogeneousness, alertness, responsiveness

2. Research and Administrative Components

3. Other Components

Bolton (1965) suggests several broad activity categories as well as an explanation of the factors that cause variability in each:

Contact Hours:

The number of clock hours spent in contact with scheduled classes should include some differentiation for the nature of the contact. This differentiation should be based on the amount of preparation needed for the class and the extra paper work above a basic minimum. For example, if the class is being taught for the first time, or if the class is a laboratory, this should be taken into consideration. Likewise, 90 students require more paper work than 25. Some differentiation should be made for graduates and undergraduates where differential work requirements exist.

Student Advisees:

A weighting could be developed that would transform the part-time student (where these exist) to full-time equivalents and this could be used to predict clock hours per week.

Committee Memberships:

Membership on regular committees of the department or of the university should include a differentiation for chairmanship of these committees.

Administrative Duties:

All administrative duties connected with departmental activities should be included.

Service Activities:

Anticipated contact and service to public schools of the state and other governmental agencies might be difficult to predict, but historical records should indicate those members of the staff who spend more than average time in service activities. If this activity is considered to be a part of the required tasks of the department, then perhaps another portion of an individual's load (e.g., contact hours, advisees, committee and administrative duties) might be decreased. If a person's load in this category is light, perhaps other portions of his load could be increased. This service might be internal, i.e., to the department or university, rather than external.

Henle (1967) sets up categories that take into consideration some joint product activities as follows:

1. Teaching
2. Research
3. Teaching - Research
4. Creative Activity in Art and Scholarship
5. Teaching through Creative Activity in Art and Scholarship
6. Public Service
7. Administration
8. Formal Personal Education
9. Intra-University Activities
10. Other Extra-University Activities (excluding public service)

Teaching activities are broken down further by levels of instruction and types of instruction. Research, Public Service, and Administration Activities also are subdivided into more detailed categories.

The following charts compile the activity categories used in a number of faculty activity studies. The charts generally support the contention that there are conceptual as well as semantic differences of opinion as to what activities are to be included. Dr. Alden C. Lorents (1971) compiled the charts in conjunction with Project PRIME Report No. 6, Faculty Activity Analysis and Planning Models in Higher Education.

TABLE B-1.

ACTIVITY CATEGORIES IN PAST STUDIES

ACTIVITY CATEGORIES	Davis 1924	Ayer 1929	Knowles and White 1939	Univ of Minn 1942	Ohio State (Educ) 1942	Southern Ill Univ 1949	Chem Eng Depts 1950	Denison Univ 1950	Univ of Minn 1951	Calif Big Ten Study 1955-56	Clark College Wash 1959	Northern Ill 1962	Silvey Study 1962	Univ of Hawaii 1964	Univ of Maryland 1964	Bolton 1965	Drews Study 1965	Leeds 1965	Wisc Univ System 1965-66	Hobbs Study 1966	College of Educ U of M 1966-67	Junior Colleges (Calif) 1967	Henle 1967	Richardson 1967	Sexton 1967	TOTAL
Instruction																		X			X					2
By Course				X								X		X					X							4
By Level				X								X		X	X											4
By Type				X								X		X												3
Credit Hours			X	X			X			X	X	X	X	X	X						X					10
Contact Hours	X			X	X	X	X	X		X	X	X	X			X			X			X				13
No of Students	X		X	X			X			X	X	X	X	X	X	X						X				11
Prep, Eval and Other			X		X	X		X											X			X				6
Contact, Prep, Eval and Other		X		X					X					X			X						X	X	X	8
Admin and Curr Devel																										
Preparations (No)												X		X	X						X					4
Independent Study					X	X				X									X					X		5
By Level					X									X							X		X			4
No of Students, Exams, Comm													X	X												2
Research		X	X		X	X			X			X					X	X				X				9
Department	X			X						X				X					X		X		X	X		8
Sponsored				X						X									X				X	X		5
Administrative																										
Public Service	X	X			X				X			X		X				X	X							9
General				X	X	X				X									X		X		X	X		8
Extension				X		X				X									X		X			X		6
Administrative																										
Dept Inst Services		X				X																	X			5
By Level of Organization				X	X				X	X				X	X				X		X		X		X	11
Student Support				X	X				X			X		X					X				X	X	X	10
Other		X	X							X									X		X		X		X	8
Professional Development	X				X	X													X				X			6

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TABLE B-2.

ACTIVITY CATEGORIES OF CURRENT STUDIES

ACTIVITY CATEGORIES	Univ of Calif 68-69	Univ of Cin 68-69	Univ of Colorado 67-68	Univ of Colorado 1970	Drake U Iowa 70-71	Eastern Wash State College 70-71	Univ of Ill 69-70	Univ of Iowa 70-71	Univ of Mich 1970	Univ of Minn 1969	Minn State Coll 1970	Minn Jr Coll 67-68	Univ of Nevada 1969	Univ of New Mexico 1970	Ohio State U 1970	Oklahoma State 1970	Oregon State System 1970	Penn State U 1970	Purdue 69-70	Rensselaer Polytechnic 69-70	SUNY System 1969	Univ of Tenn 1970	Univ of Utah 1969	Univ of Wash 1970	Univ of Wisc 70-71	TOTAL
Instruction				X																						1
By Course	X	X	X		X	X	X	X	X	X	X	X		X	X	X	X		X	X		X	X	X	X	21
By Level	X	X	X		X	X	X		X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	21
By Type	X	X	X		X	X	X		X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	21
Credit Hours		X	X		X	X			X				X		X	X	X	X	X	X		X	X	X		15
Contact Hours	X		X		X	X	X			X	X	X		X	X					X	X					12
No of Students		X	X		X	X	X		X	X	X	X				X	X	X	X	X	X	X	X	X	X	19
Prep. Eval & Other	X		X			X	X	X		X	X	X		X	X								X			11
Contact, Prep, Eval & Other																X	X				X			X		4
Admin and Curr	X		X				X	X		X	X					X			X					X	X	10
Independent Study				X		X	X				X		X		X								X			7
By Level	X		X						X	X						X			X			X		X	X	9
No of Students, Exams			X			X			X							X						X		X	X	7
Research				X												X										2
Department	X		X			X	X	X	X	X	X			X	X			X	X			X	X		X	15
Sponsored	X		X				X	X	X	X	X			X	X		X		X			X	X	X	X	15
Administration	X						X	X		X						X								X		6
Public Service				X																						1
General	X		X			X	X	X	X	X	X	X		X	X	X			X			X		X	X	16
Extension							X	X								X								X	X	5
Administration																X								X		2
Dept. & Institutional Services			X	X		X	X		X		X	X		X	X		X					X			X	12
By Level of Organization	X							X		X													X			5
Student Support	X		X			X	X	X		X	X	X		X	X	X	X		X			X		X	X	16
Other	X		X	X		X	X	X		X	X	X				X	X		X					X	X	14
Professional Dev	X		X												X											3
Computer Extracted	N		Y	N		Y	Y	N	Y	N	Y	N		N		Y			Y			Y	Y	Y	Y	
Hours or Percent	H	H	%	%	H	%	H,%		H	H	H	H	H	H		H,%		H	%	H	H	%	%	%	%	

G. Definition of the Study Population

Although no references are cited in this paragraph, review has shown that the definitions of the category of persons whose activities are to be studied is a function not only of the uses of the information but also of the ease of collection of the data. To list the varieties of populations studied would demonstrate little in this document, but something of the complexity of the issue has been discussed earlier.

H. Measures of the Amount of Activity

The Ohio Study (1970) included a rather comprehensive survey of a variety of faculty resourse analyses.

> Clearly the conclusion of virtually all studies from 1929 to 1959 was that neither credit hour, contact hour, student credit hours or student contact hours were by themselves, or together, reliable indicators of faculty member's workloads.
>
> Despite the results of these studies, the convenient descriptive load of fifteen credit hours per week (with an average of two hours preparation and grading for each credit hour taught), has persisted throughout higher education. Two reasons account for this persistence. First, the fifteen hour load presents a simple description of a complex phenomenon. By adding preparation time one arrives at a work week of forty-five hours, which seems intuitively sound. (In this case, the evidence of actual studies shows a forty-five hour week to be a conservative estimate of a typical week.) Second, no better substitute measure was available. Junior Colleges were pleased when they could, from registrars' records, show a fifteen hour load. Universities argued that twelve (hours) was a better number when research and public service were considered. The American Association of University Professors recently recommended that nine be adopted as being

> more realistic. In short, the use of the "credit hour" as a standard criterion for evaluating an individual's contribution to the work of his university is even less appropriate now than it was ten years ago and it was clearly inappropriate then.

Although Stickler (1960) claimed that "the credit hour gives a rather reliable index to total faculty load," he finds himself in opposition to not only the results of the Ohio Study but also several others. Knowles and White (1939) indicated in their study that total time per credit hour varied from 2.9 to 5.5 hours. Stewart (1934) found the range to be 2.2 to 7.7 hours per credit hour. Michell (1937) found that a 15 credit hour load usually requires about 50 hours per week but that it may require as many as 84 hours. McKinney gives an excellent series of criticisms in opposition to the credit hour as an adequate measure of faculty load and activity.

Percentage of time as a measure of faculty activity has been used in a variety of studies as have hours of time. Tyndall and Barnes (1962) give a good explanation of the problem in reference to the California and Western Conference Cost and Statistical Study, 1954-1955, in which faculty activities were computed on a percentage basis. They state that:

> this approach has obvious merits, but given the wide range in the number of working hours per week reported by faculty members, it has one major disadvantage that can be illustrated best by a single example: If two faculty members teach separate sections of a single course, each having the same salary and spending nine

> hours each week in contact with students and in "preparation" for class (including the grading of exams and course assignments, office hours, etc.), but one states that he spends 25 per cent of his (36 hour) work week on teaching whereas the other spends 16 2/3 per cent of his (54 hour) work week on teaching, quite different amounts will be charged to instruction in the two cases by the percentage-of-time approach. This seems clearly unreasonable. To say that teaching costs more in the case of the man with the 36 hour work week because he does less research would indeed be strange; the same cost should be charged in each case.

It appears that the problems of both percentage of time and hours of time, if used as the only measure of faculty activities, are immense and that some combination of the two would be a feasible solution to the problem.

I. Methods of Collection

Methods for gathering faculty resource data vary from work sampling or total enumeration studies using either questionnaires or interviews. The Ohio Study (1970) found that a system providing for individual service reporting is essential. Balfour (1970) discusses the troubles that have occurred in British Universities as a result of asking the Dons to maintain work diaries.

The questionnaire circulated to the entire faculty seems to be the most predominant method of gathering data. Some questionnaires are distributed during the academic term (Colorado) whereas others are requested to be completed after the term has ended. Stecklein (1961) discusses the importance of the questionnaire format:

> It is essential that each faculty member feel that the report form gives him ample opportunity to describe accurately the kinds of activities that he performed during the period under study. Planning such a form is difficult because the more provisions made for distinctive responses, the more difficult is the analysis and, usually, the longer the form. Some compromise has to be reached that will give each faculty member the opportunity to express adequately how he has spent his time and, at the same time, preserve the simplicity of data tabulation and analysis that is desirable.

Sampling has been used to advantage at some institutions. Lorents (1971) at Minnesota has been using a random sampling technique. Ritchey (1959) used work sampling techniques in which faculty were contacted four times a day over a 44 hour week. Other days outside of the base week were sampled on a random basis. A sampling technique in conjunction with subsequent, in depth interviews proved very useful at the University of California (1970).

J. Faculty Workload Formula

The overwhelming preponderance of information published on the subject of faculty resources deals with determination of faculty workload and faculty workload formulas. Only a few of these references can be outlined here.

Sheets (1970) discusses the major aspects of the total teaching load. These aspects are: type of class, number of students in the class, number of classes per day, the arrangement of hours within the day,

experience of the teacher, number of different preparations, amounts of clerical assistance available, non-teaching assignments, and professional improvement required. Quantitative values are assigned to each of these components and formulas are developed for assigning loads on the basis of these values.

Young (1964) discusses the establishment of six criteria on which a faculty workload was based: student credit hours, semester credit hours, class contact of teaching, laboratory hours, number of class preparations per week, number of hours of upper division work, and committee research administrative assignment. A committee then established expected norms for each criterion and a profile for each faculty member was composed.

Howell (1962) says that any acceptable measure of total load must "take into account not only those factors which the institution recognizes as part of the instructor's job, in the sense that it expects him to perform them even though they may not actually be included as a specific part of the contractual relationship, but it must also take into account those tasks that an individual feels are a burden upon him when he comes to perform them." Also, any measurement system, Howell says, must include two things: 1) the identification of the various aspects of the load and 2) the weighting of aspects of the load for purposes of comparability.

In his dissertation, Miller (1968) identifies twenty-five components of workload:

1. Number of lower division credit hours taught
2. Number of upper division credit hours taught
3. Number of graduate division credit hours taught
4. Number of laboratories taught
5. Number of seminars taught
6. Number of classes with more than 40 students
7. Designing the course of study for a correspondence course
8. Number of students taught by correspondence
9. Number of student advisees
10. Number of master's theses directed
11. Number of doctoral dissertations directed
12. Number of dissertation or thesis committee memberships
13. Number of official counselorships for student organizations
14. Number of memberships held on institution committees
15. Number of chairmanships held on institution committees
16. The job of being a department chairman
17. Number of employees supervised
18. The job of major offices of a regional or national professional organization
19. Amount of research engaged
20. Amount of publication

21. Amount of travel done connected with the institution
22. Amount of consultant work as an institutional employee and as a private endeavor
23. Amount of public relations activities
24. Number of speeches to prepare for groups
25. Attendance at required meetings

Time measures and responsibility/ability measures are established for each of these components. These then are inserted into his workload formula which produces the number of "index" points derived for performing the activity.

Hauck (1969) suggests the following formula:

$$T=T_p+N_cT_c+N_sT_s$$

Where T = time spent on course (hours/week)

T_p = time spent preparing for class (hours/week)

T_s = time spent in instruction outside of class, per student (hours/week)

T_c = time spent in class (hours/week)

N_c = number of sections

N_s = number of students

N factors are provided by the registrar. T factors are determined by executive decision. Factors T_p, T_c, and T_s should be established separately for laboratory and lecture, considered as two distinct courses. Special recitation classes should be considered similarly.

According to Hauck, the effect of each factor on the total teaching load becomes clear and the calculation is easily formulated. He says that results can be expected to increase academic efficiency by facilitating equitable distribution of functions and allowing more accurate assessment of staff requirements.

Another approach toward equivalent measures is reported by Hill (1969). Hill introduces the equivalent student credit hour (ESCH).

$$ESCH = L + 1.85U + 4.0G + 2m + 12m$$

Where

L = lower division credit loans

U = upper division credit hours taught

G = graduate student credit hours taught

m = number of undergraduate majors

M = number of graduate majors

This formula uses lower division credit hours as the base (i.e., 1 credit hour = 1.0). It gives extra weight to upper division credits, graduate credits, and to the number of majors at the undergraduate and graduate levels. Time in hours can be generated by multiplying ESCH by the number of hours it takes to produce one undergraduate credit. This formula assumes that class sizes do not change much within level. Hill indicates that this formula is useful for watching changes in load over time within a department as well as comparing departments with equivalent mixes.

For other interesting formulas, see Banks (1963), Powell (1967), or Henle (1967).

K. Summary

Stecklein (1961) suggests procedures for establishing a comprehensive faculty load analysis:

1. Formation of a faculty advisory committee
2. Determination of guiding policies
3. Development of report forms
4. Content of faculty activities report
5. Distribution and collection of forms
6. Tabulation, analysis and reporting of results

Finally, Richardson (1967) offers a series of guidelines that may act as philosophical underpinnings to any faculty activity analysis:

1. Instructional Load should be considered as a major part of the Total Service Load of faculty and should be reported separately and in appropriate functional units.

2. Instructional Load should reflect the actual instructional responsibilities delegated to faculty members as announced in the official schedule of classes.

3. Total Service Load should reflect the instructional and other responsibilities of each member of the faculty that constitute his total and primary employment responsibility.

4. Instructional and other service loads will vary with individuals, and from department to department, but the University is entitled to a full measure of work in time and effort from every member of the faculty.

5. The principal use of faculty workload data is in the deployment and utilization of each member of the faculty for maximum service to the University in development and advancement of its program.

6. An equally important use of faculty workload reports is in the continuing effort of administrative officers and faculty to define and analyze, on a cooperative basis, what faculty are doing and should be doing to advance and enhance the professional development of the individual faculty member as well as the total program of the University.

7. Utilizing effectively the talents and potential of each faculty member in each department cannot be done on the basis of a single workload measure, nor by any formula or prescription. Instead, the art and wisdom based upon the best that is known of modern personnel methods and practices will be required.

8. A fundamental value of faculty workload reports and studies derived from these reports is in the possible improvement of practices employed for maximizing the potential of each member of the faculty at both the department and university levels.

9. The use of faculty workload data for budgetary purposes, including salary cost, and production studies, and for policy decisions on staffing problems, is of secondary importance.

10. The responsibility for effective deployment and use of faculty rests with the dean of each college and is usually delegated to department chairmen.

11. The reporting, after review, of instructional and total service loads or departmental faculty members to the dean of the college is regarded as an accounting of stewardship by an important and responsible university officer, the department or unit chairman.

12. Each member of the faculty is responsible for honest and reliable reporting of his instructional and total service load to the department chairman. Reports are reviewed by the department chairman and sent to the dean of the college who, after final review, transmits copies to the central administration for use in preparing appropriate institutional studies.

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Stanford University
(July 1, 1973)

Paul V. Cusick
Vice-President for Business and Fiscal Relations
Massachusetts Institute of Technology
(July 1, 1972)

Ted Davis
Financial Vice-President
University of Utah
(July 1, 1973)

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Executive Director
New England Board of Higher Education
(July 1, 1973)

Loren Furtado
Assistant Vice-President
University of California
(July 1, 1972)

Richard Gibb
Commissioner of Higher Education
South Dakota State Board of Regents
(July 1, 1973)

Robert L. Harris
Vice-Chancellor
California Community Colleges
(July 1, 1972)

Dr. Bert Y. Kersh
Dean of Faculty
Oregon College of Education
(July 1, 1972)

Samuel Lawrence
Vice-President for Administration
Cornell University
(July 1, 1972)

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Chancellor
Oregon State System of Higher Education
(July 1, 1972)

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University of Houston
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Higher Education Planning
The University of the State of New York
(July 1, 1973)

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Chancellor
State University System of Florida
(July 1, 1972)

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Chancellor
The Minnesota State College System
(July 1, 1973)

Gordon Osborn
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State University of New York
(July 1, 1973)

James Ryan—(Chairman)
Vice-President for Planning and Budgeting
University of Washington
(July 1, 1972)

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Associate Director for Research
Southern Regional Education Board
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President
Lawrence University
(July 1, 1972)

Dr. Martin Zeigler
Associate Provost
University of Illinois
(July 1, 1972)

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Florida State University System
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Finance Department
The Junior College District of St. Louis
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Denis Curry—(Chairman)
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Washington Council on Higher Education
(July 1, 1972)

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